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Paving the Way for Climate Policy: Compensation for Electricity Consumers and Producers under a CO₂ Cap and Trade Policy

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Policies to cap emissions of carbon dioxide (CO₂) in the U.S. economy could pose significant costs on the electricity sector, which contributes roughly 40 percent of total CO₂ emissions in the United States. Whether producers or consumers bear the cost of this regulation depends on whether generators are subject to cost-of-service regulation or sell power at market-determined prices. The initial distribution of a portion of the valuable emissions allowances represents a significant potential source of compensation, but it is easy for the compensation to fail to reach those who bear the burden of costs. Free allocation also has substantial efficiency costs, raising the social cost of a policy that already promises to be more expensive than prior air pollution regulations.

We use a detailed simulation model to analyze the feasibility and cost of targeting the initial distribution of emissions allowances in a way that compensates adversely affected electricity producers while maximizing the share of allowances available for another purpose. We find that if regions/states are apportioned emissions allowances, they can achieve a compensation target using simple rules based on public information for typically one-half of the allowance value that such rules would require if implemented at the federal level.

We also analyze different approaches for allocating allowance value to electricity consumers. Allocation to customers, which could be achieved by allocation to local distribution companies (retail utilities), would lead to relatively symmetric impacts on electricity prices across regions that depend primarily on the carbon intensity of electricity consumption rather than the nature of regulation of electricity markets. This approach to allocation would lead to significantly lower retail electricity prices relative to free allocation to firms. This form of compensation, however, comes with an efficiency cost that will increase the overall cost of climate policy and that could increase overall energy costs to households and businesses, depending on the mix of energy sources they consume.